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**Human motor neuron progenitor transplantation leads to endogenous neuronal sparing in 3 models of motor neuron loss.**

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**Funding Grants:** hESC-Derived Motor Neurons For the Treatment of Cervical Spinal Cord Injury

**Public Summary:**  
None

**Scientific Abstract:**

Motor neuron loss is characteristic of many neurodegenerative disorders and results in rapid loss of muscle control, paralysis, and eventual death in severe cases. In order to investigate the neurotrophic effects of a motor neuron lineage graft, we transplanted human embryonic stem cell-derived motor neuron progenitors (hMNPs) and examined their histopathological effect in three animal models of motor neuron loss. Specifically, we transplanted hMNPs into rodent models of SMA (Delta7SMN), ALS (SOD1 G93A), and spinal cord injury (SCI). The transplanted cells survived and differentiated in all models. In addition, we have also found that hMNPs secrete physiologically active growth factors in vivo, including NGF and NT-3, which significantly enhanced the number of spared endogenous neurons in all three animal models. The ability to maintain dying motor neurons by delivering motor neuron-specific neurotrophic support represents a powerful treatment strategy for diseases characterized by motor neuron loss.

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